

ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

Dear Sir:

March 8th, 1955.
Vol. 13...No. 2

Contract to design two nuclear reactors for undersea craft has now been awarded to Westinghouse Electric Corp. by the Navy Department. The award was for \$12,417,488. In addition to designing the reactors, Westinghouse will also develop plans for all the associated equipment necessary to operate them as nuclear power plants. The Navy said the power plants are for installation in the two new "atomic" submarines it was authorized to build last year. (Other BUSINESS news, p. 2).

A new uranium ore-buying station and sampling plant will now be set up by the USAEC at Cutter, Ariz., eight miles east of Globe, in the south central part of the state. This new buying station will provide a market for the increasing tonnages of uranium-bearing ores being mined in that area, and may stimulate further the exploration and development of ore deposits. American Smelting & Refining Co. will operate the plant for the USAEC. (AS & R also operates ore-buying stations for the USAEC at Riverton, Wyo.; Monticello, White Canyon, Moab, and Marysville, Utah; and at Edgemont, S. Dak.) Buying schedules for the new Cutter plant will be posted prior to actual opening of the plant, probably this May or June. (Other RAW MATERIAL news, p. 4).

Much of the electronic instrumentation for Pennsylvania State College's \$300,000 nuclear reactor has now been completed by Leeds & Northrup Co., Philadelphia, and is awaiting shipment to the site. It is expected that the reactor will be in operation before the end of the year, since the work on it by the University's shops is nearing completion. Already completed is the reactor building, with its concrete shielding and other standard reactor housing construction; some \$208,000 has been spent for this building. (Other news of NUCLEAR DEVICES, p. 3).

At the invitation of the U.S. Government, Sir William Penney, director of atomic weapons research for the U. K. Atomic Energy Authority, and assistants, will visit the U.S. to discuss with USAEC and other Government officials a greater exchange of nuclear information, with particular reference to processes for construction of thermonuclear (hydrogen) weapons. Sir William will also view various nuclear detonations of the current series now underway at the Las Vegas, Nev., nuclear weapon proving ground. (Such an interchange with a foreign nation had been forbidden by the 1946 Atomic Energy Act; the revised Act of 1954 has made possible mutual agreements such as may come out of this visit.

What it terms a "very advantageous" arrangement has now been made by the government of Australia with Great Britain for a full exchange of knowledge on the industrial use of atomic power. Australian Supply Minister H. Beale said the arrangement will save years of research and "hundreds of millions of pounds sterling" and enable Australia to put its nuclear developments on the same level as Great Britain. The announcement was made recently by Mr. Beale before a meeting of the Australian Atomic Energy Commission and its business advisory group.

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ATOMIC ENERGY BUSINESS REPORTS...

NUCLEAR POWER SYSTEM USING LIQUID METAL BEING INVESTIGATED:- A nuclear power plant system using liquid metal as fuel is now being evaluated from an engineering viewpoint by a group of 14 industrial and 5 other organizations at Brookhaven National Laboratory. This study, which is a concerted effort to determine the feasibility of such a system for central station electrical energy generation, is in charge of, and has been organized by, The Babcock & Wilcox Co., New York. Preliminary designs for the system, known as the liquid metal fuel reactor, were developed by Brookhaven people. The system is intended to generate electric power, "breed" new fuel for itself, and deliver by-products to waste tanks---all in continuous processes. It would be the first use of a liquid metal alloy--in this case uranium-bismuth--as the fuel stream to interconnect continuous processes. A preliminary report is due this April 1st, and a final report June 30th, 1955. Companies providing either full time or consulting specialists to the study include Air Reduction Co.; American Gas & Electric; American Smelting & Refining; Bailey Meter Co.; Bechtel Corp.; Carbide & Carbon Chemical Co.; Detroit Edison; Dow Chemical; Ethyl Corp.; International Nickel; Merck & Co.; National Carbon; Oak Ridge National Lab.; Rensselaer Polytechnic; Tennessee Valley Authority; and Vanadium Corp. of America.

HIGH TEMPERATURE PIPING STUDY TO BE MADE:- To develop general engineering information, in the field of high temperature piping, which is applicable to heat transfer systems of nuclear reactors, an engineering project is now being jointly set up by the USAEC and American Society of Mechanical Engineers at Knolls Atomic Power Laboratory, near Schenectady, N.Y. The project will continue studies of thermal fatigue in ductile metals which were originally undertaken by the USAEC for its nuclear reactor program; private industry in the U.S. has an immediate need for this type of information for nuclear reactor applications. The work will be done under contract between the ASME and General Electric Co., operators of Knolls under a prime USAEC contract.

PROPERTY PURCHASED BY NUCLEAR ENGINEERING FIRM:- A four-story building which has now been acquired by Nuclear Development Associates, White Plains, in that city, will give that firm of nuclear consulting engineers some 55,000 sq. ft. of floor space to consolidate its present operations now spread out over four buildings in White Plains. The building it has now bought is assessed for tax purposes at \$350,000. (This is the second acquisition of property by Nuclear Development in the last few weeks. It had previously bought a 1100-acre hunting preserve near Pawling, N.Y., for a subsidiary nuclear research center to be known as Southern Dutchess Experimental Laboratory. This new firm will design equipment to produce nuclear fuels for power generation, both stationary and mobile, as well as apparatus for radioisotope production and for medical therapy using radioisotopes. Financing for these expansion moves was in part obtained privately from David and Laurance Rockefeller who recently bought an interest in Nuclear Development.)

EXPORT MARKET FOR NUCLEAR POWER DEVICES BEING EXPLORED:- Dr. Lawrence R. Hafstad, director of the atomic energy division of the Chase National Bank, New York, left New York last fortnight to visit seven nations, for discussions with persons in those countries heading up their nuclear programs. Dr. Hafstad, former director of reactor development for the USAEC, is travelling under sponsorship of the Fund for Peaceful Atomic Development, Inc. Walker L. Cisler, president, Detroit Edison, who is president of the Fund, said Dr. Hafstad's primary purpose is "to learn what types of information are urgently needed for peaceful atomic projects"; the Fund's purpose is to help establish channels of personal contact for such information. Dr. Hafstad will visit India, Turkey, Italy, Switzerland, France, Belgium, and Great Britain, returning in April. (In May, he will accompany John J. Hopkins, president, General Dynamics Corp., to Japan for discussions with Japanese industrialists and scientists on the economic applications of atomic energy.)

BID ACCEPTED ON CONSTRUCTION OF TEST BUILDING AT REACTOR TESTING STATION:- On a low bid of \$117,898 Whitney Brothers, Salt Lake City, have now obtained a contract for construction at the national reactor testing station, Arco, Idaho. The job consists of facilities to determine certain basic reactor characteristics, and includes construction of an instrument cell building, control building, test pit building, and terminal building housing mechanical and electrical equipment.

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NEW PRODUCTS, PROCESSES, & INSTRUMENTS...for lab & plant...

PRODUCTS FROM THE MANUFACTURERS:- Portable radiation meter, with detector probes, trade named Probitron, is furnished in special velour-lined case. The set designed for use in general medical practice includes control unit, probe, large-crystal detector, and a set of accessories for the routine tracer tests used in medical diagnosis. Standard assemblies for specialized work are the Roentgen Probitron (Model FAX16R) for control in radiological therapy, and the Isotope Probitron (Model FAX16L) for thyroid uptake and other activity tracer determinations. (Of interest are probes available: The sensitive element of the standard probe is a rod $\frac{1}{4}$ " in diameter, and 8-in. long. Curved, semi-flexible, and beta-sensitive rods are available and can be attached interchangeably to the probe housing. There is also an ultra-sensitive detector probe with a large crystal.) --Reed-Curtis Scientific Instrument Co., Inc., Playa Del Rey, Calif.

New lightweight portable probe, with interchangeable heads for detecting different radiations, is said by the manufacturer to have high thermal neutron counting efficiency and the ability to count alpha particles in the presence of high beta-gamma background. The phosphors for detecting alpha, beta, gamma, and neutron radiations are incorporated into specially designed caps, which can be interchanged. The probe uses an RCA 5819 photomultiplier tube, the output of which is fed into a cathode follower pre-amplifier that operates directly into most scalars on the market. --Instrument Dep't., General Electric Co., Schenectady 5, N.Y.

AGENTS OF MANUFACTURERS:- Radiation Instrument Development Laboratory, Chicago 36, Ill., manufacturer of radiation instruments and accessories, has now appointed Gerald G. Leeds Co., 12 Crampton Lane, Great Neck, (L.I.), New York as its representatives for the New York area. The Leeds Co. will handle the line on an exclusive basis.

DEVELOPMENT ASSISTANCE FOR MANUFACTURERS:- Technical information and limited consultation in the development of portable thulium X-ray units will now be provided to U. S. firms by the USAEC's Argonne National Laboratory, Lemont, Ill. (The development at Argonne of this small, relatively inexpensive, portable unit using radioactive thulium had been announced last Spring.) A fact sheet on the unit provides information on its design, the cost and availability of the radioactive thulium, and other details. Information is also available on methods of separating thulium from rare earths ores, and its conversion into the metal or oxide of sufficient purity for radioactivation. Inquiries should be made to: Technical Services Div., USAEC, P.O. Box 59, Lemont, Ill.

NOTES:- The wide-spectrum antibiotic Terramycin has now been labeled with carbon-14 by research people at Pfizer Therapeutic Institute, Maywood, N.J., according to Jasper H. Kane, director of research for Chas. Pfizer & Co., Brooklyn, N. Y., pharmaceutical manufacturer. The research which led to this first tagging of a broad range antibiotic was conducted by J.F. Snell, director of the Institute, Richard Wagner, and Frank A. Hochstein. Dr. Snell said that it will be at least six months before the radioactive Terramycin will be available in sufficient quantities to permit general research.

ATOMIC ENERGY FINANCIAL REPORTS...

NUCLEAR INSTRUMENT MAKER SHOWS SALES GAINS:- Beckman Instruments, Inc., Fullerton, Calif., producer of instruments for scientific, industrial, and medical uses, including nuclear instruments, expects that its earnings for the six months ending next June 30th, the second half of its fiscal year, will exceed the 45¢ a share earned in the first fiscal half. Sales are expected to exceed \$20 million, for the full 1955 fiscal year, up from \$18,652,870 in fiscal 1954. According to A.O. Beckman, president, the company has a five-to-one ratio of current assets to current liabilities, and a net worth exceeding \$10 million. He said that about 40% of the company's work is in Government business.

ANALYSES OF FIRMS AVAILABLE:- A report on Foote Mineral Co., lithium producer, may be obtained from Schmidt, Poole, Roberts & Parke, 123 S. Broad St., Phila. 9, Pa. A study of Nuclear Instrument & Chemical Corp. is available from Loewi & Co., 225 E. Mason St., Milwaukee 2, Wisc. A discussion of General Precision Equipment Corp. may be obtained from H. Hentz & Co., 60 Beaver St., New York 4, N.Y.

RAW MATERIALS...prospecting, mining & marketing...

UNITED STATES:- Utaco Uranium, Inc., which was recently bought by Central Western Petroleum Corp., Fort Worth, Tex., now states it has made a new ore find, on claims it holds adjacent its original property, showing "good mineralization"..... Only current producing property of Standard Uranium Corp. is on its Bruncke lease, in San Juan County, Utah, the firm advises. (For the year ending Dec. 31st, 1954, Standard had a net loss of \$7,921.10. Control of Standard was recently sold by Joseph W. Frazer, former associate of Henry J. Kaiser, to Charles Steen, of Moab, Utah.)..... Cal Uranium Co. now reports a new uranium mineral discovery on its Big Indian district property in San Juan county, Utah. Drill tests are being evaluated Uranium properties of the Homestake Mining Co., in the Big Indian district, San Juan County, Utah, the Little Beaver and La Sal uranium mines, are reported to be making regular shipments of uranium ores to the Monticello processing mill..... According to an official of American Mineral Development Corp., that firm has blocked out "very substantial" amounts of thorium minerals on its leases in the Oak Creek, Colo., mining district.

CANADA:- At Lorado Uranium Mines' property, in the Beaverlodge area, work is underway on shaft deepening. It is planned to carry the opening to a depth of 500-ft. for two additional levels, the company states..... Two uranium prospects in the Lake Athabaska area, Northern Saskatchewan, have now been acquired by Great Shield Uranium Mines, Ltd., the company reports. The claims, the Har group at Camsell Portage, and the Dav group on Davis Island at Tazin Lake, have shown radioactivity which the firm finds "interesting" and proposes to do detailed surface exploration and mapping in the coming season..... A \$5 million mill is planned by Quebec Lithium Corp. to produce 1,000-tons daily of lithium concentrates, it has now been announced in Toronto. The firm says that it has sold part of its output to Lithium Corp. of America which has contracted to take 165-tons a day for a five-year period.

MEETINGS, CONFERENCES, & COURSES...on nuclear energy subjects...

MEETINGS:- A Symposium on The Effect of Radiation on Polymers is scheduled for the 127th national meeting of the American Chemical Society, Mar. 29-Apr. 7, 1955, in Cincinnati. Papers to be presented at this Symposium include: A Cellophane Dye System Dosimeter for High Range Radiation, by E. J. Henley and D. Richmond; Property Changes in Polyethylene Induced by Radiation, by Q.P. Cole; The Radiation Chemistry of Hydrocarbon Polymers, by A.A. Miller, E.J. Lawton, and J.S. Balwit; Some Fundamental Aspects of the Effects of High-Energy Radiation on Polymers, by M. Burton and M.P. Reddy; and other papers.

COURSES:- The Junior Management Development Program of the USAEC is now training a few persons (who have had graduate study or equivalent work experience) in atomic energy technology and at the same time preparing them for responsible positions in middle and senior management levels. The trainees start in July; further information may be obtained from G.M. Gableman, USAEC, Washington 25, D. C.

CONFERENCES:- Plans for participation by the U. S. in the International Conference on Peaceful Uses of Atomic Energy, Geneva, Switzerland, Aug. 8-20, 1955, include the presentation of papers on reactor technology; atomic power; radiation protection; applications of atomic energy to biology, medicine, and agriculture; and the industrial uses of radioisotopes. At present, the USAEC is assembling this information through universities, industrial organizations, and research centers. Technical director for U. S. participation in this conference is George L. Weil, former assistant director of the USAEC's reactor development division, and now in private practice in Washington, D.C., as a nuclear energy consultant.

A Conference on Nuclear Engineering, to consist of a three day program at the University of Calif., Los Angeles, April 27-29, will hear panel discussions during all three days, with reading of papers also set for each day. Panel discussions on the first day will deal with Water and Liquid Metals as Primary Working Fluids, and paper sessions with Boiling Water Reactors and Radiation Sources for Industrial Applications. The panel subject for April 29th is Power Reactor Control During Load Changes. The Conference is sponsored by the UCLA departments of engineering, in cooperation with the various engineering societies.

ATOMIC PATENT DIGEST...latest grants for nuclear materials & devices...

GRANTS MADE:- Apparatus for vapor coating base material in powder form. Comprises (in part) an elongated vessel with three sections in which vaporizable material is heated. Deposition of the material occurs upon the object subjected to the vapor in the vessel. U. S. Pat. No. 2,702,523 issued Feb. 22nd, 1955; assigned to United States of America (USAEC). (Inventors: R. J. Prestwood, and D. S. Martin.)

Recovery of uranium from aqueous solutions. A process of obtaining a quantitative precipitation of uranium values, and a minimum co-precipitation of vanadium values, from a leach liquor obtained by extracting a carnotite ore with an aqueous solution of sodium carbonate. U. S. Pat. No. 2,703,271 issued Mar. 1st, 1955; assigned to United States of America (USAEC). (Inventors: J. F. Shea and M. G. Willigman.)

Insulator clamping device. In a support for insulators, the combination of one resiliently deformable clamping member for holding the insulator, and means associated with this clamping member to deform it and apply a spring force against the insulator. U. S. Pat. No. 2,703,337 issued Mar. 1st, 1955; assigned to United States of America (USAEC). (Inventor: W. L. Scott, Jr.)

Radiation detector means on vehicles and like carriers. Comprises a radiation detector and alarm for installation on an automobile to indicate to car's occupants the presence of radioactive emanations in the vicinity. U. S. Pat. No. 2,703,367 issued Mar. 1st, 1955, to Irving Florman, N.Y.

NEW BOOKS & OTHER PUBLICATIONS...in the nuclear field...

Machining Studies by Radiometric Methods. Gives procedures and test equipment used in radioisotope tracer measurements of rate of wear of machine tool bits in experiments at the U. S. Army's Rock Island Arsenal. 25 pages. No. PB-111473. --Office of Technical Services, Washington 25, D. C. (75¢)

Applied X-rays, by George L. Clark. A working text. 843 pages. --McGraw-Hill Book Co., New York 36. (\$12.50)

Effects of Ingestion of Large Doses of Radioactive Elements. Work done by H. Becks and H. M. Myers, during latter part of 1953, at Univ. of Calif., Los Angeles. No. PB-116028. (Microfilm, \$1.50; Photocopy \$1.50)..... Locus of Emetic Action of Irradiation. Investigations by H. I. Chinn and S. C. Wang at U. S. Air Force Schl. of Avia. Medicine, Randolph Fld., Tex.; report covers work with dogs receiving 300 to 800 r. No. PB-115810. (Microfilm, \$1.50; Photocopy, \$1.50) -- Library of Congress, Publication Board Project, Wash. 25, D. C.

NOTES:- The Engineering Practice School, (nuclear) maintained by Mass. Instl. of Tech. at Oak Ridge, Tenn., and which is for graduate students enrolled at M.I.T., has made available a brochure describing its objectives. Address: Prof. J. E. Vivian, Dep't. of Chem. Eng., M.I.T., Cambridge 39, Mass. A new edition of the booklet "Mesa Miracle" has just been published by U.S. Vanadium Co. (div. of Union Carbide & Carbon Corp.), New York 17. It is a popular account of U.S.V.'s uranium activities in the Western U.S.; available at n/c on request to U.S.V. A reprint from Science, Jan. 21, 1955, entitled "Effects of Atomic Explosions on Weather", by L. Machta and D. L. Harris, (U. S. Weather Bureau, Wash.) is now available from the USAEC, Wash. 25, D. C. (The leaflet shows definitively that the weather in the U. S. was not effected by such explosions.) A scintillation counter designed by the U. S. Geological Survey, working with the USAEC, specifically for radioactive mineral prospecting (and available from U. S. manufacturers for approx. \$500) is described in a report "Portable Scintillation Counter for Geologic Use". It is Circular 355, available from U. S. Geological Survey, Wash. 25, D. C. Microcard copies of the USAEC's unclassified technical reports are now being made available by the Microcard Foundation, Godfrey Memorial Library, Middletown, Conn. This is a new service of the Microcard people who, for several years, have been producing Microcard copies of USAEC reports at Oak Ridge for use in USAEC installations and by its contractors.

Sincerely,

The Staff,
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